

## 1 Claims

- 2
- 3 1. A cardiovascular stent comprising:
- 4 a generally tubular body, and
- 5 a synthetic one-way valve capable of moving
- 6 from a first open position to a second closed
- 7 position, wherein, in use, movement of fluid in
- 8 a first direction through the stent causes the
- 9 valve to adopt the open position and movement
- 10 of fluid in a second opposite direction causes
- 11 the valve to adopt the closed position.
- 12
- 13 2. A cardiovascular stent as claimed in claim 1.
- 14 wherein the valve is formed from resilient
- 15 material.
- 16
- 17 3. A cardiovascular stent as claimed in claim 2
- 18 wherein the valve is constructed such that, in
- 19 use, movement of fluid in the first direction
- 20 through the stent urges the resilient material
- 21 of the valve to adopt a configuration in which
- 22 the aperture defined by the material is
- 23 substantially circular in cross-section thereby
- 24 enabling increased fluid to flow through the
- 25 valve and thus through the stent.
- 26
- 27 4. A cardiovascular stent as claimed in claim 2 or
- 28 3 wherein the valve comprises two leaflets
- 29 formed from resilient material and wherein, in
- 30 use, when fluid is flowing in the second
- 31 direction through the stent or when no fluid is
- 32 flowing through the stent, the leaflets are

- 1           urged towards each other such that the passage  
2           of fluid is minimised.  
3
- 4       5.    A cardiovascular stent as claimed in any one of  
5           the preceding claims, wherein the valve  
6           comprises at least one cantilever member having  
7           a first end and a second end, said cantilever  
8           member being pivoted at said first end to the  
9           stent, the cantilever member being resiliently  
10          pivotable from a first extended position in  
11          which the valve is in a closed position to a  
12          second position in which the valve is in the  
13          open position.  
14
- 15       6.    A cardiovascular stent as claimed in claim 5  
16           wherein the valve comprises two cantilever  
17           members.  
18
- 19       7.    A cardiovascular stent as claimed in any one of  
20           the preceding claims wherein the stent is  
21           constructed such that it can be expanded in  
22           diameter from a "collapsed" configuration to an  
23           "expanded" configuration, wherein in the  
24           collapsed configuration, the stent is of  
25           narrower diameter than in the expanded  
26           configuration.  
27
- 28       8.    A cardiovascular stent as claimed in claim 7  
29           when dependent on claim 5 or claim 6 wherein on  
30           expansion of the diameter of the stent, the  
31           second end of the cantilever member pivots to  
32           an extended position in which the material

- 1 forming the valve and defining the aperture of  
2 the valve when in the open position is pulled  
3 such that the area of the aperture formed by  
4 the material is decreased.  
5
- 6 9. A cardiovascular stent as claimed in any one of  
7 the preceding claims wherein the stent is  
8 resiliently deformable at one or both ends to  
9 receive and enable connection with a second  
10 stent.  
11
- 12 10. A cardiovascular stent as claimed in any of one  
13 of the preceding claims wherein the stent is  
14 shaped at one or both ends to enable connection  
15 to a second stent.  
16
- 17 11. A cardiovascular stent as claimed in any one of  
18 the preceding claims for linking a coronary  
19 artery to the left ventricle of the heart.  
20
- 21 12. A cardiovascular stent as claimed in any one of  
22 claims 1 to 10 for linking a first portion of  
23 an ascending venous structure and a second  
24 portion of the same ascending venous structure.  
25
- 26 13. A method for treating a full or partial  
27 occlusion of a blood vessel comprising the  
28 steps of:  
29
- 30 providing stent means wherein said stent means  
31 comprise at least one stent as claimed in  
32 claims 1 to 12, a first end of the lumen of the

- 1           stent means being in communication with a  
2           cardiovascular compartment on a first side of  
3           the occlusion,  
4  
5           the second end of the lumen of the stent means  
6           being in communication with a cardiovascular  
7           compartment on the other side of the occlusion  
8           and allowing blood flow from the first side of  
9           the occlusion to the other side of the  
10          cardiovascular compartment through the lumen of  
11          the stent means.  
12  
13  
14          14. A method as claimed in claim 13 wherein the  
15          stent means comprises a plurality of stents  
16          longitudinally aligned to allow the flow of  
17          blood from a stent at a first end of the stent  
18          means to a stent at a second end of the stent  
19          means.  
20  
21          15. A method as claimed in claim 13 or claim 14  
22          further comprising the step of increasing the  
23          diameter of the stent from a reduced diameter  
24          in a collapsed position to an increased  
25          diameter in an expanded position.  
26  
27          16. A method for treating varicose veins comprising  
28          the step of:  
29  
30          positioning stent means comprising at least one  
31          stent as claimed in claims 1 to 12 in a vein.  
32

- 1     17. A method for treating varicose veins comprising  
2         the step of:  
3  
4         replacing at least a part of a vein with stent  
5         means comprising at least one stent of the  
6         first aspect of the invention.  
7
- 8     18. Tube means comprising a tubular portion and a  
9         valve, said valve comprising at least one  
10        cantilever member having a first end and a  
11        second end, said cantilever member being  
12        pivoted at said first end to the tubular  
13        portion, the cantilever member being  
14        resiliently pivotable from a first extended  
15        position in which the valve is in the closed  
16        position to a second position in which the  
17        valve is in the open position.  
18
- 19    19. Tube means as claimed in claim 18 wherein in  
20        moving from the closed position to the open  
21        position the aperture of the valve is moved  
22        from being ellipisoidal to substantially  
23        circular.  
24
- 25    20. A device for moving fluid comprising a tube as  
26        claimed in claims 18 or 19.  
27  
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